

CLAIMS

1. An apparatus for coating printed circuit boards (1) with a solder stop lacquer or an electroresist, comprising at least one roll coating apparatus (2) having an upper rubberised guide roll (3), a lower rubberised applicator roll (4), a metering roll (5) forming a metering gap together with the applicator roll (4), a storage container (6) for the solder stop lacquer or the electroresist arranged above the roll coating apparatus (2), means to transport the printed circuit boards (7), means to dry the solder stop lacquer (11) and a device for turning the coated printed circuit boards, said roll coating apparatus (2) having only a coating unit for coating the bottom side of the printed circuit board.

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2. An apparatus according to claim 1, wherein the applicator roll (4) has a hardness of 20 to 40 Shore A and a roughness  $R_z$  of 5 to 10  $\mu\text{m}$ .

20 3. An apparatus according to claim 1, wherein the apparatus further comprises a wedge shaped coating knife (8) between the applicator roll (4) and the metering roll (5).

4. An apparatus according to claim 1, wherein the apparatus further comprises a second metering roll (9) forming a metering gap with the first metering roll (5), above which the storage container (6) or a screen case (12) in case of powder coatings is located.

30 5. An apparatus according to claim 1 or 4, wherein the metering rolls (5, 9) are heatable.

6. An apparatus according to claim 4 or 5, wherein the second metering roll (9) is a fixed metering roll being coated with a plastic film in such a way that the desired coating areas can be set free by peeling off the film.

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7. A process for coating printed circuit boards (1) with a solder stop lacquer or an electroresist, comprising the following steps:

10 (i) supplying the printed circuit board (1) to a roll coating apparatus having only a coating unit for coating the bottom side of the substrate,

15 (ii) metering the solder stop lacquer or electroresist having a viscosity of 4000-15000 mPas at 25°C or metering a powder coating,

(iii) applying the lacquer on the bottom side of the printed circuit board (1),

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(iv) drying the coated printed circuit board (1) for a period and at a temperature sufficient to reduce the viscosity of the lacquer below 300 mPas or to reduce the viscosity of the powder coating under 500 mPas, to  
25 harden the lacquer and to render it non-tacky, and

(v) turning the printed circuit board and performing the steps (i) to (iv) in the same roll coating apparatus or in a further one.

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8. A process according to claim 7, wherein step (iv) is carried out at a temperature of 100-120°C over a period of 10 seconds to 1 minute.

9. A process according to claim 7, wherein the lacquer is applied at a roll speed of 0.2-4 m/s, preferably 0.5-4 m/s, most preferably 1-4 m/s in a thickness of the layer of 10-  
5 100  $\mu\text{m}$ .

10. A process according to claim 7, wherein a lacquer or an electroresist according to claims 11 to 17 is used as the solder stop lacquer or the electroresist.

10 11. Laser structurable solder stop lacquer and electroresist, wherein the solder stop lacquer or the electroresist has a solid content of 50-100 wt.-% and a viscosity of 5000-15000 mPas.

15 12. Solder stop lacquer and electroresist according to claim 12, which is essentially free of fillers.

20 13. A solder stop lacquer and an electroresist according to claim 11 or 12, which is thermally curable or curable by irradiation.

14. A solder stop lacquer and an electroresist according to claims 11 to 13, which is halogen-free.

25 15. A solder stop lacquer and an electroresist according to claim 11, wherein the lacquer has a content of solvents having a boiling point above 120°C of 50-20 wt.-%.

30 16. A solder stop lacquer and an electroresist according to claim 11, which comprises a halogen-free epoxy resin.

17. A solder stop lacquer and an electroresist according to claim 11, wherein the solder stop lacquer is a thermally curable, powdery solder stop lacquer having a viscosity of 10000-15000 mPas at a temperature of 80-120°C.

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18. Printed circuit board obtainable using the process according to claims 7 to 11.